

AUTOMATIC LINE CROSS-WEDGE ROLLING

METAL FORMING SYSTEM



GENERAL PROCESS CHARACTERISTICS

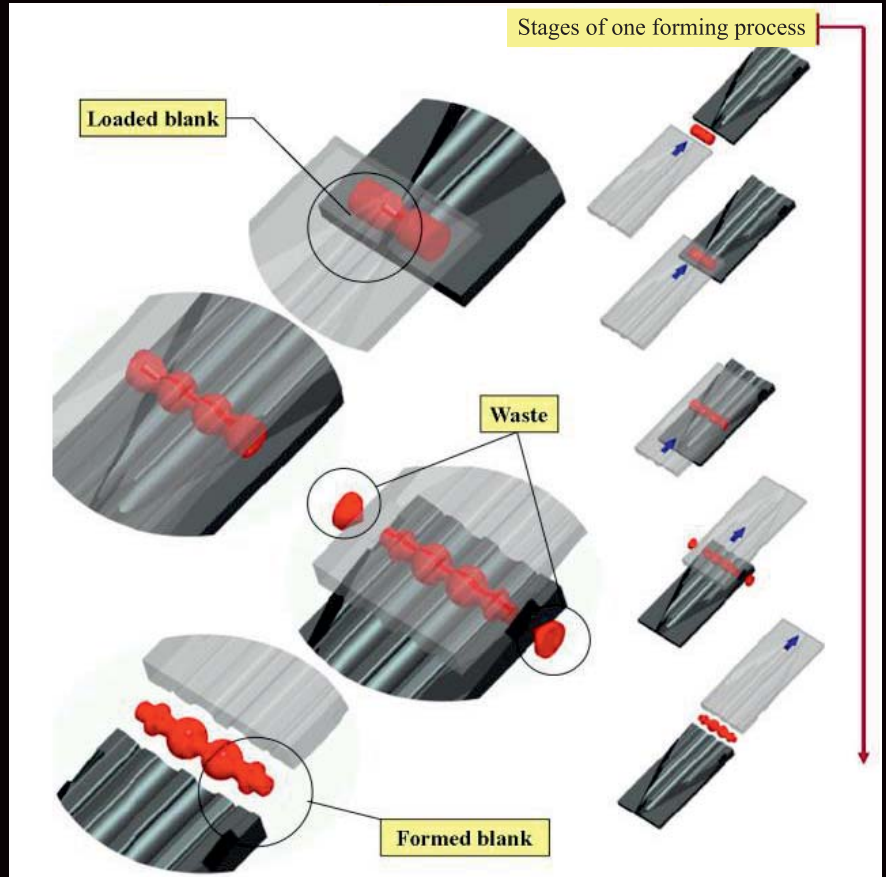
With continuous increase in raw materials prices, economic advantages of metal forming need not to be proven. Cross-wedge rolling is a logical solution to this problem, as there is a wide range of products, which can't be produced by any other method with the same high level of productivity and cost saving.

Machining Method Type	 <p>Conventional</p>	 <p>Cross-wedge rolling</p>
Overall saving of material		
Loaded blank, kg	6,3	3,3
Formed blank (preform), kg	2,7	3,1
Waste, kg	3,6	0,6
Waste, %	57,14	18,18



CROSS-WEDGE ROLLING METHOD

Our Metal Forming Process has the capability of forming complex parts from rare metals (such as titanium) or high-strength steel (such as 52100), with ease. A technological breakthrough that until now could only be imagined. If round or cylindrical type solid products are a part of your manufacturing program, then this method of forming parts, previously produced through the application of most difficult, costly and numerous operations, will permanently change the way you approach your manufacturing process.



An exceptionally stable base together with extra-long dies give all cross-wedge rolling machine the capability of producing complex shapes and forms in one simple operation.

Old method

New method

Comparison of the preform and scale dimensions made by old and new method



**WRL and WRL TS Series:
Innovative Wedge Rolling with
Process Control**

The WRL and WRL TS Series from AMT engineering, based on wedge rolling technology, meets the constantly increasing market demands with three key features:

- Simplification of tool settings
- Further improvement of workpiece quality
- Increase in flexibility

WRL and WRL TS use the advanced technical solutions

This results in special advantages to the customer:

- Fully automated cross-wedge rolling process
- High capacity
- Mechanical or hydraulic power pack
- Vertical feed during rolling (dimensional correction via control system off-sets)
- Rolling speeds are individually programmable

New approaches have been taken to optimize this technology:

- Optimized machine guarding concept
- Analysis of the forming process with the aid of FEA simulation
- Innovative tool design to increase tool life

WRL series with one movable slide for production of parts Ø 6-90 mm

	WRL 1206	WRL 2510	WRL 4012	WRL 6010	WRL 6312	WRL 8012	WRL 10016
Max. part Ø, mm	12	25	40	60	63	80	100
Max. part L, mm	200	350	350	350	350	350	420
Output, pcs/hour	1200	500-720	450	600	300-450	240-300	200-300
Tool length, mm	630	1000	1200	1000	1200	1200	1600



WRL...TS series with two movable slides for production of parts Ø 6-300 mm

	WRL 2510TS	WRL 6316TS	WRL 9018TS	WRL 8020TS	WRL 10025TS	WRL 13030TS	WRL 20035TS	WRL 30060TS
Max. part Ø, mm	25	63	90	80	110	130	200	300
Max. part L, mm	250	350	500	500	600	600	1200	2800
Output, pcs/hour	720-900	450-600	360-500	360-450	120-240	90-180	60-180	60-120
Tool length, mm	1000	1600	1800	2000	2500	3000	3500	6300



CROSS-WEDGE ROLLING TOOL

The Tool is the most important component of the forging production. AMTEngineering employs experienced specialists in tool design and tool production, which allows us to produce high quality tools for CWR machines. Along with the tool itself, we provide our customers with a set of drawings and make proper adjustments after trial runs at our plant. Customer personnel may be trained at our facility where they will receive all the necessary knowledge of rolling technology, tool design and CWR line servicing.



INDUCTION HEATERS

Induction heater systems produced by our company can operate both with rolling machines and any forging machine or used independently (induction heater power varies from 20 to 1600 kW). Resistance furnaces of special design are produced for warm rolling (around 700 °C).

Per customer request we equip our machines with heaters produced by INDUCTOHEAT (USA).



ANCILLARY EQUIPMENT

To solve special production tasks of cross-wedge rolling a wide range of ancillary equipment is produced: feeding mechanisms, induction heaters, conveyors, cooling system and other special equipment of various types.

Cross wedge rolling lines feature various feeding devices depending on the customer's production program: from simple storage devices with manual feeding up to complex hoppers that can store up to 5 tons of billets that would ensure rolling for 4-8 hours without additional feeding and any operator's involvement.



SERVICING

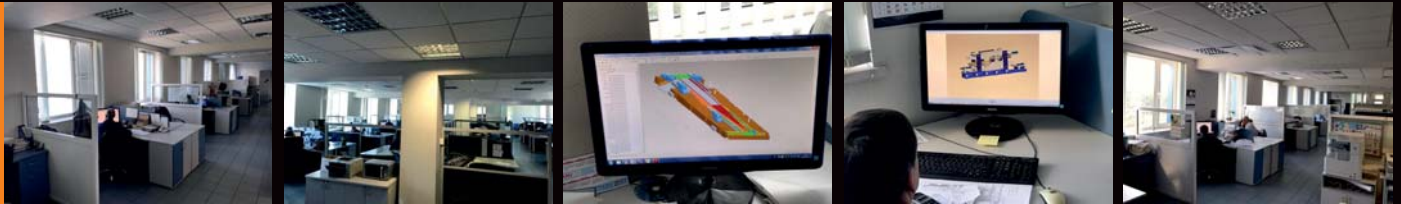
We take servicing very seriously. When you buy a line from AMTEngineering, our relationship doesn't terminate when the line is delivered; it's just the beginning. We're committed to making sure you get the most out of your new line. The service provided is the best in the business. Just ask our customers. We can quickly respond to problems by performing system diagnostics via telephone and Internet.

WARRANTY

We realize that a warranty is only as good as the company that stands behind it. That's why we don't simply stock "critical" parts or wear items. We back our warranty with an extensive inventory of spare parts that allow most items to be shipped the same day you call.

DESIGN

We use the latest CAD and solid modeling software to design our systems. While the systems we produce are built to order, the individual machines that make up our system are based on standard designs. In order to provide you with a system that meets your specifications, we simply choose the appropriate components from our standard line of equipment. The result is a custom built line produced from standard components that are competitively priced.



MANUFACTURING

We are one of only a few companies in our industry that actually manufactures their equipment. Most vendors outsource manufacturing to subcontractors or simply assemble the finished components. We design, manufacture and assemble the entire line. We invest heavily in the state of the art fabrication equipment. Consequently, our manufacturing costs are lower and we have parts readily available if you need a replacement. You're assured, when you buy from AMTEngineering, the highest quality is in every system we manufacture.



AUTOMATIC CONTROL SYSTEMS

The purpose of the automatic control systems is automation of the cross-wedge rolling process and adjustment of its parameters depending on main features of the part to be rolled. Frequency converters ensure accurate control of tool drives over a wide range of settings and have a high overload resistance.

Programmable logical controllers represented by a wide variety of base and add-on modules are used for configuration of automatic control system in order to meet the technological process requirements. Operator control panels are used to provide more efficient production process control and adjust the required parameters.

Automatic control system elements and electrical equipment are assembled in RITTAL cabinets.

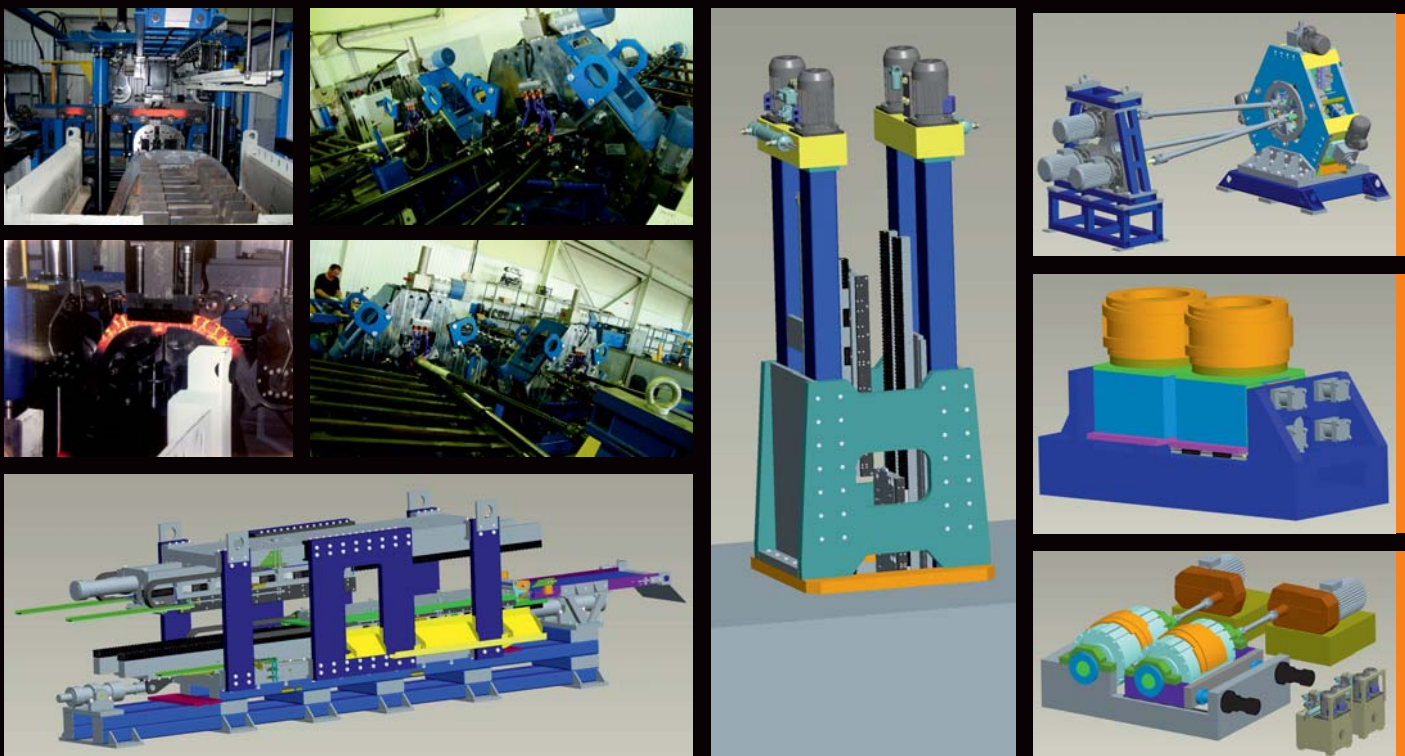
Components produced by such world-famous manufacturers as Mitsubishi, Omron, Hitachi, Simens and Allen-Bradley are used in AMT automatic control systems.



OUR NEW DEVELOPMENTS

In addition to traditional rolling lines we have developed new machines for metal forming by pressure:

- Roller Cross Wedge Rolling Lines with vertical and horizontal installation of the rolls;
- Cross Wedge Rolling Lines with flat tool installed in vertical surface;
- Three-roll Helical Rolling Lines;
- Special Bending Machines for hot parts bending.



AMTEngineering specializes in design, engineering and manufacturing of equipment for the metal-working industry.

The AMTEngineering's floor space, including its engineering center, is about 8000 square meters. At present the company employs nearly 190 people (including 76 design engineers). Many years of research activities and design developments are reflected in the high quality of our equipment. Since the company started operations in 1999, we have received 42 patents for various types of equipment and special tools. Over the years of successful operation AMTEngineering has assisted its customers to increase profitability and discover new business opportunities. Our main goal is to meet and exceed our customers' expectations and become the most advanced and respected metalworking equipment supplier worldwide.

The equipment manufactured by "AMT engineering" is successfully working at the factories of some leading enterprises of the world: "Severstal", "Gorky Automobile Plant", "Kama Automobile Plant", "Exergia", Vologda "Building Constructions and Road Machines" plant, Samara Plant "Electroschit", "Novolipetsk Metallurgical Plant", "Dimitrovgradsky Plant of Light Steel Profiles", the Group of companies "Metal profile" (all Russian), "Minsk Tractor Plant", "Mogilev Plant of Elevator Engineering", "Belarusian Potash Company" (all Belarusian), Chernigov Plant "Avtodetal", "Vinnitsa Plant of Tractor Units", Kirovogradsky Plant "Gidrosila" (all Ukrainian), "DANAHER Tool Group", "Metaldyne" (both USA), "American Axle & Manufacturing" (Mexico) and others.

Engineering Center "AMTEngineering", Ltd.

223054, Republic of Belarus, Minsk region, Ostroshitski Gorodok, Leninskaja str. 105

Phone: +375 (17) 500-31-02 Fax: +375 (17) 500-31-32

Sales & Marketing Department: +375 (17) 500-31-12

E-mail: amtengine@amtengine.com, amtengine@gmail.com

www.amtengine.com



Official Representative in Europe - BK FormTech GmbH & Co. KG

Bruchweg 2, 59602 R then, Germany

Phone: +49 2952 902093 Fax: +49 2952 902094

E-mail: info@bk-formtech.de

www.bk-formtech.de



Official Representative in USA – ERS Engineering Corp.

6346, Orchard Lake Rd., Suite 103, West Bloomfield, MI 48322, USA

Phone: +1 (248) 538-9082 Fax: +1 (248) 538-9486

E-mail: info@ersengineering.com

www.ersengine.com

